

<b>Notice of Allowability</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/518,624	JASTI ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Jason M. Nolan, Ph.D.	1626	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 03/08/2007.
2. ☒ The allowed claim(s) is/are 1-4, 6, 7, 12, 13 and 15-18 (now 1-12).
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☒ All    b) ☐ Some\*    c) ☐ None    of the:
  1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.
  - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review ( PTO-948) attached
    - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
  - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

- |  |  |
|--|--|
| 1. <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 5. <input type="checkbox"/> Notice of Informal Patent Application                      |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 6. <input type="checkbox"/> Interview Summary (PTO-413),<br>Paper No./Mail Date _____. |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO/SB/08),<br>Paper No./Mail Date _____    | 7. <input type="checkbox"/> Examiner's Amendment/Comment                               |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit<br>of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance   |
|  | 9. <input type="checkbox"/> Other _____.   |

### **DETAILED ACTION**

**Claims 1-4, 6, 7, 12, 13 & 15-18** are pending in the instant application, of which **Claims 1, 2, 15 & 16** have been amended. No new claims are presented.

#### ***Response to Amendment***

Applicant's amendments, see Amendment – After Non-Final Rejection, filed 03/08/2007, with respect to **Claims 1, 2, 15 & 16** have been fully considered and are entered. The 112-enablement rejection of **Claims 1, 2, 15-18** has been withdrawn.

#### ***Response to Arguments***

Applicant's argument, see Amendment – After Non-Final Rejection, filed 03/08/2007, with respect to **Claims 6, 7 & 12** have been fully considered and are persuasive. The 112-indefinite rejection of **Claims 6, 7 & 12** has been withdrawn.

#### ***Statement of Reasons for Allowance***

The present invention pertains to the compounds of formula (I) and methods of using these compounds (or compositions) for the treatment of diseases pertaining to the modulation of 5-HT (serotonin) receptors in a patient. Said diseases include those associated with the central nervous system, such as, for example: psychotic diseases such as anxiety and depression; cognitive diseases such as Alzheimer's disease; and inflammatory diseases such as irritable bowel syndrome.

The compounds according to formula I are free of the prior art; nothing known in the art anticipates or renders the compounds of the instant application obvious. The closest prior art related to the formula I is the compound RN 135966-96-0, taught by Kozikowski *et al.* (*Tetrahedron Lett.* **1991**, 32(28), 3317-20). This compound, like most of the prior art contains an amide functional group, where as the compounds according to formula I are amine derivatives (i.e. R<sub>11</sub> and R<sub>12</sub> do not form a carbonyl group).

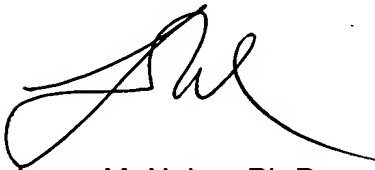
The tetracyclic serotonin derivatives of formula I are shown to be inhibitors of various 5-HT receptor sub-types in the specification, (see biological assays and literature references therein, pp. 25-31). The biological mechanisms and strategies for the modulation of serotonin receptors have been well studied in the art. The review by Barnes *et al.* (*Neuropharmacology* **1999**, 38, 1083-1152) provides a review of central 5-HT and their function. Stated in the summary (pp. 1134-1135): "It is now clear that in the whole animal model, activation of specific 5-HT receptor subtypes can be linked with the modulation of specific behaviors...the clinically utility of certain 5-HT receptor selective ligands has been established in various neuropsychiatric disorders including major depression and anxiety and migraine." Further, the review by Bassiony *et al.* (*Psychosomatics* **2003**, 44(5), 388-401) establishes the role of 5-HT in Alzheimer's disease (see page 395) and the review by Gershon, M. D. (*Ailment Pharmacol. Ther.* **2004**, 20(suppl. 7), 3-14) establishes the role of 5-HT in inflammatory bowel syndrome.

One skilled in the art would be enabled to make and use the compounds taught herein for the purpose of treating the diseases listed above using the teachings of the specification in conjunction with the teachings in the prior art.

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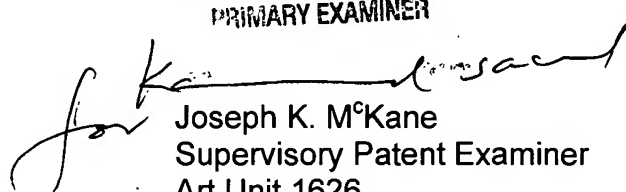
***Telephone Inquiry***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Jason M. Nolan, Ph.D.** whose telephone number is **(571) 272-4356** and electronic mail is **Jason.Nolan@uspto.gov**. The examiner can normally be reached on Mon - Fri (9:00 - 5:30PM). If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **Joseph M<sup>c</sup>Kane** can be reached on **(571) 272-0699**. The fax phone number for the organization where this application or proceeding is assigned is **571-273-8300**. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



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Date: March 26, 2007